

1. Why are mechanical integrity tests performed on saltwater injection wells? What purpose do they serve?

Saltwater injection wells are termed Class II-D (for disposal) wells in the Underground Injection Control program. The wells dispose of fluids brought to the surface in connection with natural gas storage operations or conventional production of oil and gas, and these fluids may be commingled (mixed) with waste waters from gas plants that are an integral part of oil and gas operations.

In the Federal UIC program, injection wells are tested for mechanical integrity (MI), both internal and external, at prescribed intervals to ensure that the well's constructed components do not leak fluids which may threaten underground sources of drinking water (USDWs). In other words, it is a direct means of determining or measuring the adequacy of the construction of an injection well.

A well is deemed to have mechanical integrity if:

- a) There is no significant leak in the well casing, tubing, or packer; (internal MI) and
- b) There is no significant fluid movement into a USDW through vertical channels adjacent to the injection wellbore (external MI).

The absence of internal leaks may be determined by:

- 1. Monitoring the annulus pressure while maintaining a positive pressure on the well's annulus, after an initial pressure test;
- 2. Pressure testing with liquid or gas;
- 3. Radioactive tracer testing in programs and wells where this procedure is valid for leak detection; or
- 4. Alternative testing approved by the permitting agency after USEPA approval (40 CFR 146.8 (d)). The approval process for alternative MIT testing is located here:

http://www.epa.gov/ogwdw/uic/pdfs/guidance/guide-memo_guidance-61_alt_method_mit_1988.pdf

The absence of leaks external to the well (absence of fluid movement between the constructed well's casing and the wellbore, may be determined by using:

- 1. A temperature, noise, radioactive tracer survey (in certain cases), or an oxygen activation survey (also known as a water flow log);
- 2. An alternative test, or combination of tests approved by the permitting agency and also approved first by USEPA;
- 3. For Class II wells, cementing records which show the existence of adequate cement to prevent fluid movement.

2. What constitutes a failed mechanical integrity test?

Generally, internal MIT of an injection well is assessed by observing a pressure decline in the well's pressure profile over a stipulated period of time. There are differing criteria for failing an internal MIT depending on the well's construction, the type of pressure test being conducted, the local geologic conditions, hydrogeology, and historical practices in the region or state where the test is being conducted. In other words, there is no exact criteria for failing an MIT, rather it is a performance standard that may or may not be specified by the regulations in a state or federal UIC program.

For external MIT, there are specific parameters for each of the geophysical logging tools allowed for assessing flow or no flow outside the well. Each tool for measuring external MI will have a different set of parameters, so there is no single answer to determining an MIT failure for external MI.

Where cementing records are used for assessing external well MI for Class II wells, the use of a valid cement bond log (CBL) is essential as a means of verifying cement records provided by the operator. Usually cement records include the job tickets from the contractor verifying the number of sacks of cement used and the method of placement.

3. If wells lose hundreds of pounds of pressure during mechanical integrity tests, should the subject wells be shut in until repairs can be made?

Wells which fail to demonstrate MI may be shut-in immediately or they may be placed on a compliance schedule for repair depending on UIC program policy and the relative threat to USDWs presented by the well.

EPA has developed a guidance on the appropriate procedures and actions following MIT failure for Class II injection wells. This guidance is located here:

http://www.epa.gov/ogwdw/uic/pdfs/guidance/guide-memo_guidance-76_followup_mit_failure_1992.pdf

4. When injection wells fail mechanical integrity tests is it acceptable for state regulatory officials to allow companies to continue pumping liquid waste into the ground for weeks after?

The response to MIT failure for federal UIC programs where the state program is directly implemented (DI) by the EPA Region Office will follow the regulations for Class II-D injection wells as promulgated under Section 1422 of the Safe Drinking Water Act (SDWA). In general, where a Class II well lacks mechanical integrity, the Director gives written notice to the owner or operator and unless immediate cessation is required, the well must cease injection within 48 hours of the receipt of the Director's determination. For specifics on mechanical integrity, depending on whether the well is rule authorized or permitted, please consult 40 CFR 144.28(f)

or 144.51(q), respectively. However, for states which have UIC Class II programs which were approved by EPA under Section 1425 of the SDWA for the optional demonstration relating to oil and natural gas, the state regulations may not mirror the federal requirements. These state programs have demonstrated to EPA that their Class II program is an effective program and so their requirements and response(s) related to MIT failures may differ, but should still be protective of USDWs. EPA guidance for 1425 program requirements and recommendations is located here:

http://www.epa.gov/ogwdw/uic/pdfs/guidance/guide_uic_guidance-19_primacy_app.pdf

5. If it is found that state officials knowingly allowed companies to pump waste into a well that failed a mechanical integrity test could they be in violation of the Safe Drinking Water Act like this case?

Violations of the SDWA, and in particular violations related to the continued injection of fluids which may threaten USDWs could result in enforcement action to the operator of the injection wells, punishable by fines and other penalties as outlined in EPA penalty policy. However, determining whether state officials knowingly allowed any operator to continue to inject into a well with a failed MIT in violation of their state laws would require a more thorough investigation by an enforcement office in the state or federal government.

6. Does the EPA have any oversight over the state agencies that regulate injection wells? If so, what type of oversight does the EPA provide?

Yes. USEPA Regional Offices conduct oversight of their state agencies which have primary enforcement authority (or Primacy) for injection wells. States may not have full primacy in that they may have authority to implement the program for all classes of wells (except Class VI GS wells which are implemented by EPA in all states), for Classes I, III-V wells under 1422 SDWA authority, or for Class II wells alone under either 1422 or 1425 optional demonstration authority.

When the USEPA approves a State UIC program for any class of injection well, it is the state program and the appropriate state agencies which implement the program including permitting, monitoring, enforcement, and closure of the injection wells. Most states with oil and gas activities, and therefore Class II-D injection wells, have primacy for their Class II UIC programs (major exceptions being Michigan, Pennsylvania, New York, Virginia, and Florida, as well as most Indian Tribal Lands).

If a State neglects its responsibilities for appropriate management of an approved UIC program, or if the Agency determines that a program approved under Section 1425 of the SDWA is no longer an effective program, the Agency may seek to withdraw state primacy following procedures in 40 CFR Part 145 of the federal regulations, and conduct a rulemaking to establish a federal UIC program for that state and UIC activity. If an approved State Class II UIC program fails to take appropriate actions and conduct enforcement for violations under State laws, the USEPA may overfile using existing State laws that are codified in the CFR at 40 CFR Part 147.

7. When was the memorandum of agreement between the EPA and North Dakota established, giving the state regulatory control of Class II injection wells?

June 2, 1983

8. Since 2000, how many times have EPA officials performed annual evaluations on the Division of Oil and Gas's regulatory system in North Dakota? According to this GAO report, these evaluations may not be occurring.

EPA Region 8 typically conducts at least one formal evaluation of its State and Tribal UIC programs annually, including North Dakota's UIC Class II program. The most current evaluation of this program was conducted on March 31, 2014. Since Agency policy does not allow for retention of state oversight-related records past ten years, Region 8 cannot confirm that these formal evaluations were done each year since 2000.

9. Has North Dakota submitted 7520 reports to the EPA? Could you provide me with those records?

Yes. A FOIA would be required to provide these documents.